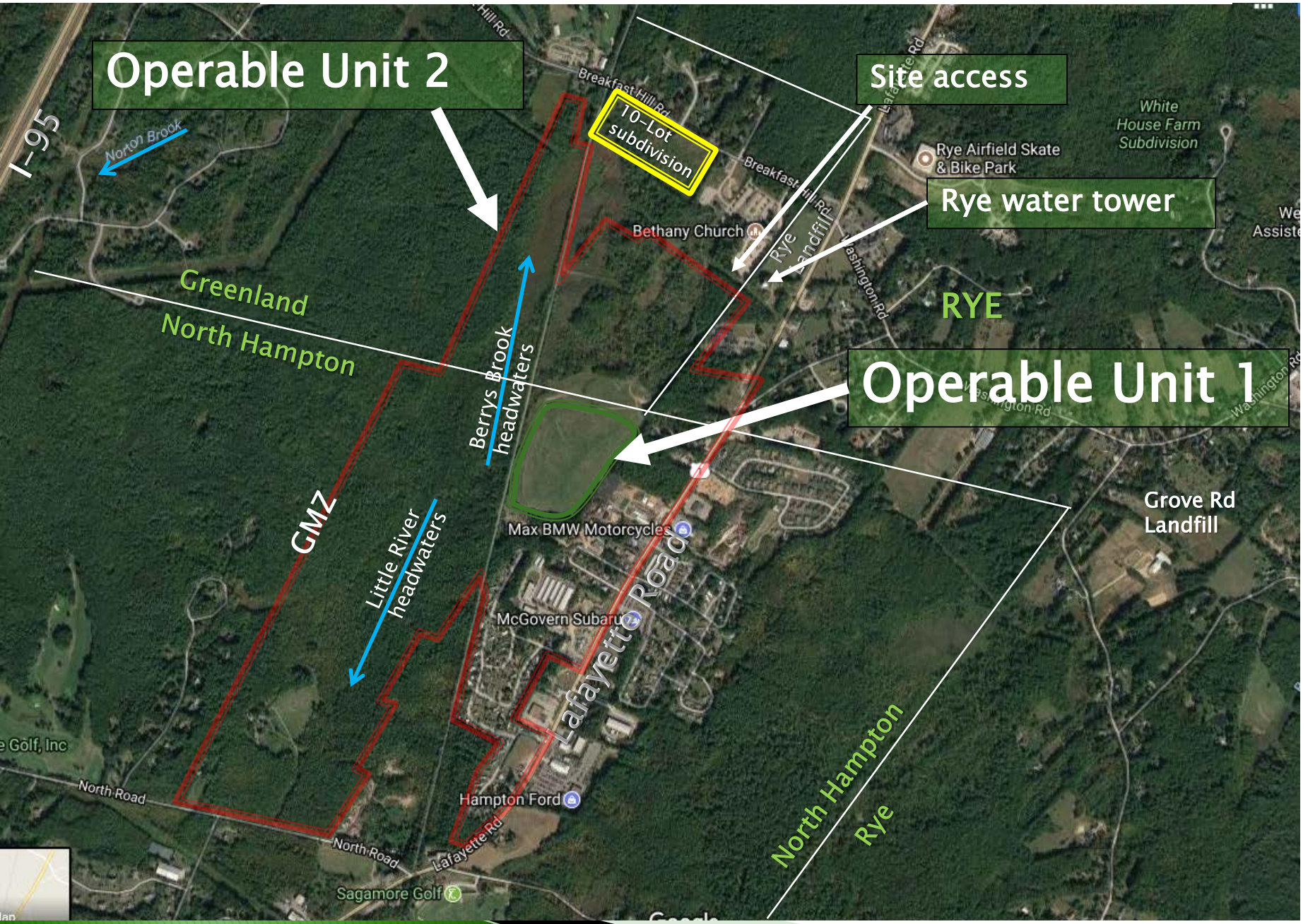


# Coakley Landfill Area



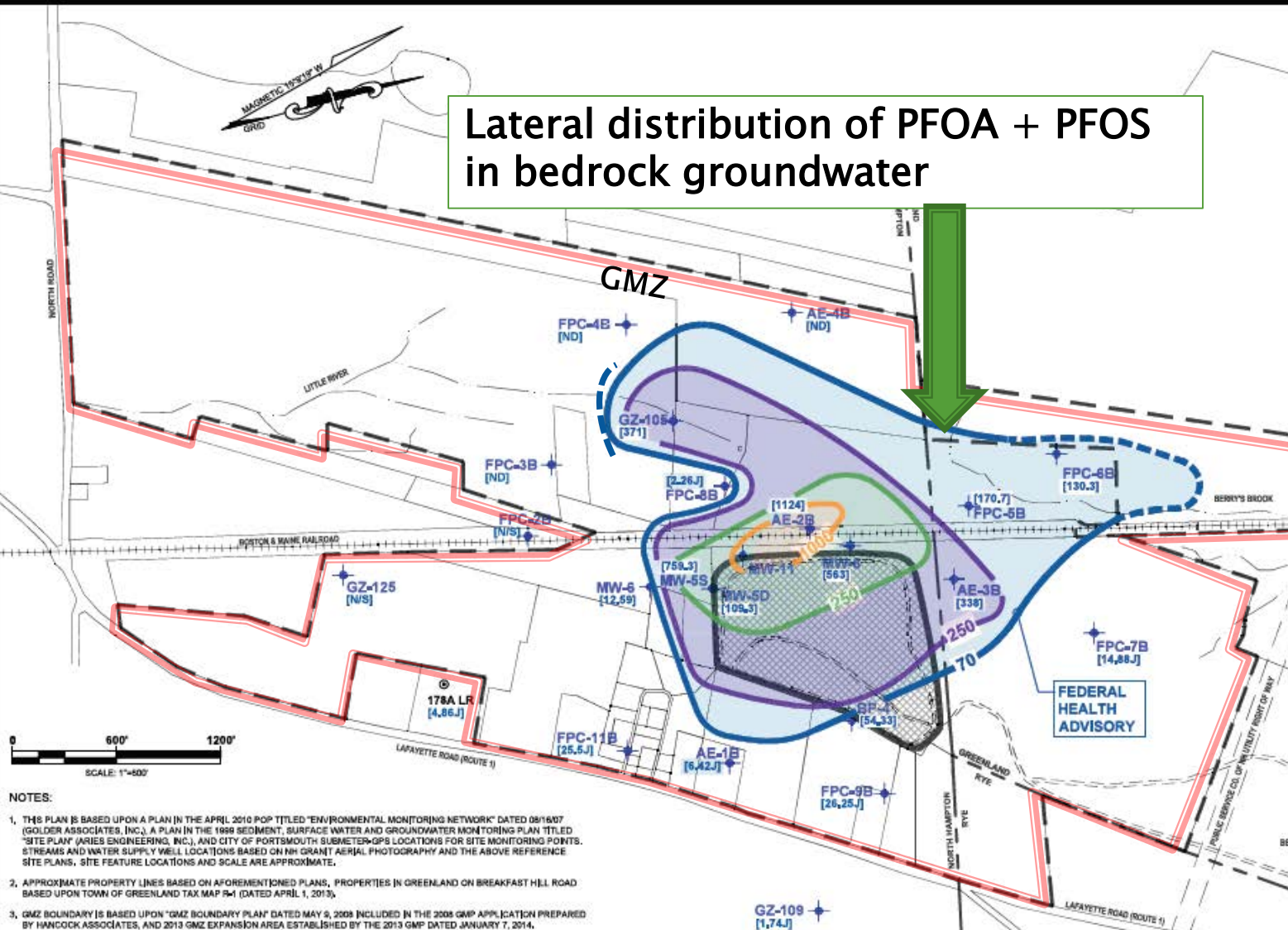
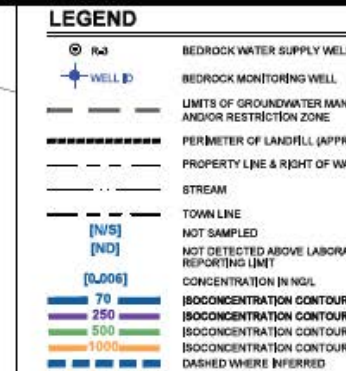
# Groundwater Management Permit (GMP)

- ❑ Used to manage contaminated groundwater at over 800 sites in NH
- ❑ Managing contaminant plumes following:
  - source removal,
  - treatment or
  - containment
- ❑ Establish a groundwater management zone (GMZ) by defining property boundaries within which groundwater exceeds standards





# Lateral distribution of PFOA + PFOS in bedrock groundwater



## NOTES:

1. THIS PLAN IS BASED UPON A PLAN IN THE APRIL 2010 POP TITLED "ENVIRONMENTAL MONITORING NETWORK" DATED 08/16/07 (GOLDER ASSOCIATES, INC.), A PLAN IN THE 1999 SEDIMENT, SURFACE WATER AND GROUNDWATER MONITORING PLAN TITLED "SITE PLAN" (ARIES ENGINEERING, INC.), AND CITY OF PORTSMOUTH SUBMETER-GPS LOCATIONS FOR SITE MONITORING POINTS, STREAMS AND WATER SUPPLY WELL LOCATIONS BASED ON NH GRANT AERIAL PHOTOGRAPHY AND THE ABOVE REFERENCE SITE PLANS. SITE FEATURE LOCATIONS AND SCALE ARE APPROXIMATE.
2. APPROXIMATE PROPERTY LINES BASED ON AFOREMENTIONED PLANS, PROPERTIES IN GREENLAND ON BREAKFAST HILL ROAD BASED UPON TOWN OF GREENLAND TAX MAP R-1 (DATED APRIL 1, 2013).
3. GMZ BOUNDARY IS BASED UPON "GMZ BOUNDARY PLAN" DATED MAY 9, 2008 INCLUDED IN THE 2008 GMP APPLICATION PREPARED BY HANCOCK ASSOCIATES, AND 2013 GMP EXPANSION AREA ESTABLISHED BY THE 2013 GMP DATED JANUARY 7, 2014.

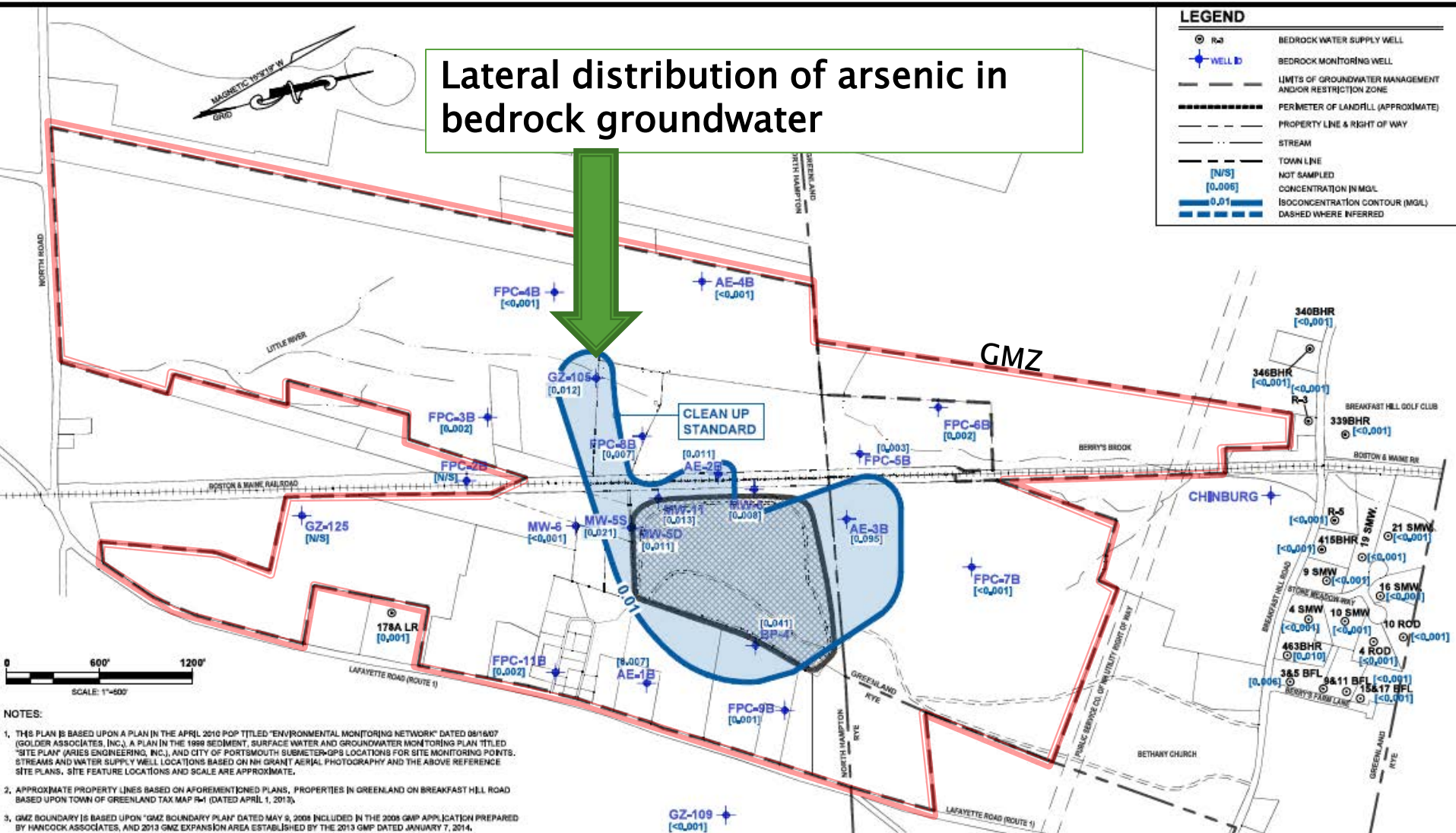
PROJECT TITLE: **COAKLEY LANDFILL SUPERFUND SITE  
NORTH HAMPTON & GREENLAND, NEW HAMPSHIRE**

SHEET TITLE: **SEPTEMBER 2017 LATERAL EXTENT OF TOTAL  
PFOA + PFOS IN BEDROCK GROUNDWATER**

FIGURE 16	BY: BLQ	REV:	DESCRIPTION:
AK 10424.008	DATE: 2017-12-04	REV DATE:	DESCRIPTION:
SCALE: AS SHOWN	APPROVED BY: SLV	ISSUE:	DESCRIPTION:
	CHECKED BY: SLV	ISSUE DATE:	



# Lateral distribution of arsenic in bedrock groundwater



**COAKLEY LANDFILL SUPERFUND SITE**  
**NORTH HAMPTON & GREENLAND, NEW HAMPSHIRE**  
**SEPTEMBER 2017 LATERAL EXTENT OF TOTAL ARSENIC**  
**IN BEDROCK GROUNDWATER**

**FIGURE 11**  
 IN: 10424.011  
 SCALE: AS SHOWN

BY: BLQ  
 DATE: 2017-11-10  
 APPROVED BY: SLY  
 CHECKED BY: SLY

REV:   
 REV DATE:   
 ISSUE:   
 ISSUE DATE:   
 DESCRIPTION:   
 DESCRIPTION:

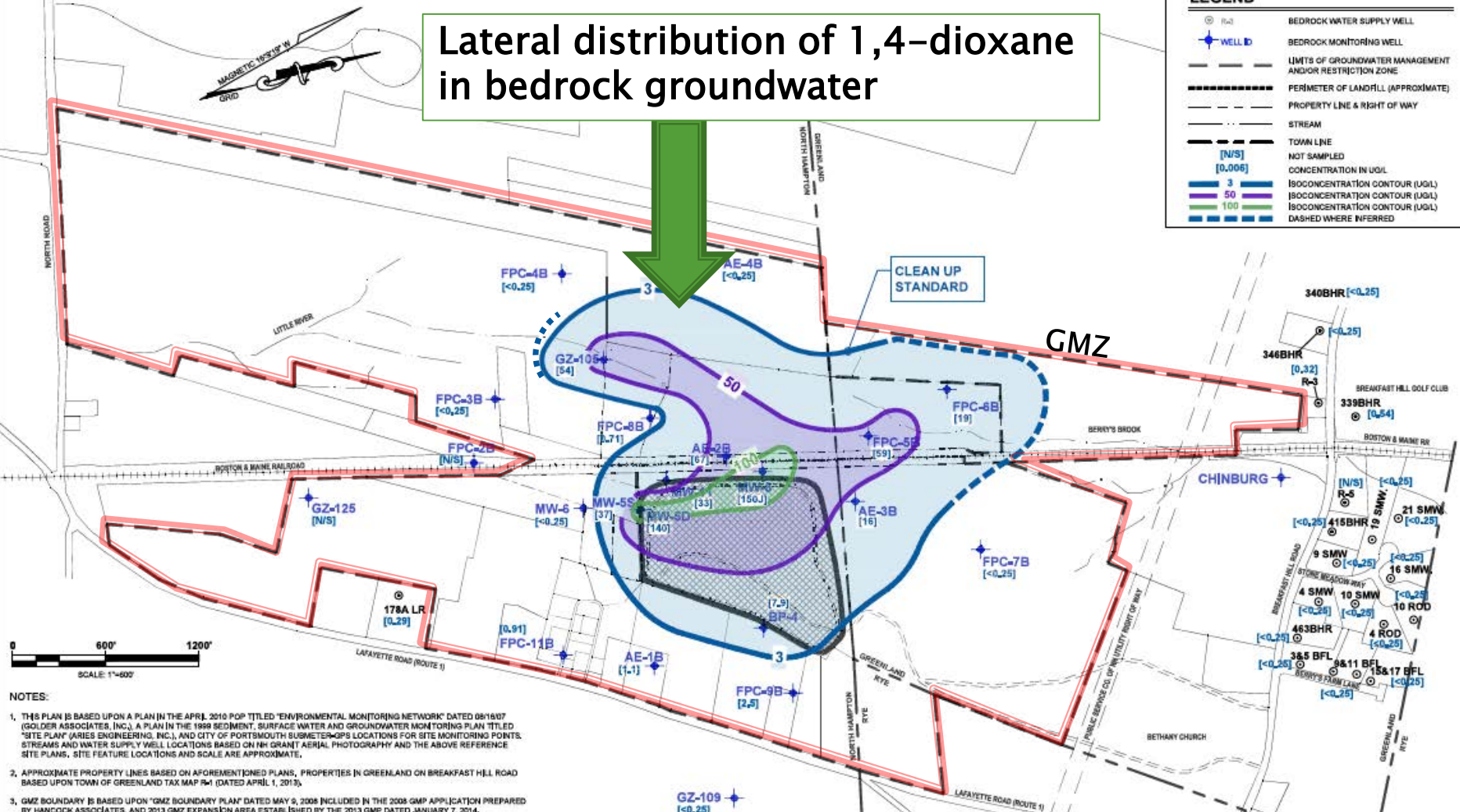
**CES INC**  
 Engineers • Environmental Scientists • Surveyors



# Lateral distribution of 1,4-dioxane in bedrock groundwater

## LEGEND

	BEDROCK WATER SUPPLY WELL
	BEDROCK MONITORING WELL
	LIMITS OF GROUNDWATER MANAGEMENT AND/OR RESTRICTION ZONE
	PERIMETER OF LANDFILL (APPROXIMATE)
	PROPERTY LINE & RIGHT OF WAY
	STREAM
	TOWN LINE
	NOT SAMPLED
	CONCENTRATION IN UG/L
	ISOCONCENTRATION CONTOUR (UG/L)
	ISOCONCENTRATION CONTOUR (UG/L)
	ISOCONCENTRATION CONTOUR (UG/L)
	DASHED WHERE INFERRED



## NOTES:

1. THIS PLAN IS BASED UPON A PLAN IN THE APRIL, 2010 POP TITLED "ENVIRONMENTAL MONITORING NETWORK" DATED 08/19/07 (GOLDER ASSOCIATES, INC.), A PLAN IN THE 1999 SEDIMENT, SURFACE WATER AND GROUNDWATER MONITORING PLAN TITLED "SITE PLAN" (ARIES ENGINEERING, INC.), AND CITY OF PORTSMOUTH SUSMETER-QPS LOCATIONS FOR SITE MONITORING POINTS. STREAMS AND WATER SUPPLY WELL LOCATIONS BASED ON NH GRANT AERIAL PHOTOGRAPHY AND THE ABOVE REFERENCE SITE PLANS, SITE FEATURE LOCATIONS AND SCALE ARE APPROXIMATE.
2. APPROXIMATE PROPERTY LINES BASED ON AFOREMENTIONED PLANS, PROPERTIES IN GREENLAND ON BREAKFAST HILL ROAD BASED UPON TOWN OF GREENLAND TAX MAP #41 (DATED APRIL 1, 2013).
3. GMZ BOUNDARY IS BASED UPON "GMZ BOUNDARY PLAN" DATED MAY 9, 2008 INCLUDED IN THE 2008 GMP APPLICATION PREPARED BY HANCOCK ASSOCIATES, AND 2013 GMZ EXPANSION AREA ESTABLISHED BY THE 2013 GMP DATED JANUARY 7, 2014.

**COAKLEY LANDFILL SUPERFUND SITE  
NORTH HAMPTON & GREENLAND, NEW HAMPSHIRE**

## FIGURE 13

PROJECT TITLE	BLQ	REV	DESCRIPTION
SHEET TITLE	DATE: 2017-12-04	REVDATE:	DESCRIPTION:
10424.011	APPROVED BY: SLY	ISSUE:	
SCALE: AS SHOWN	CHECKED BY: SLY	ISSUE DATE:	

**SEPTEMBER 2017 LATERAL DISTRIBUTION  
OF 1,4-DIOXANE IN BEDROCK GROUNDWATER**

**CES INC**  
Engineers • Environmental Scientists • Surveyors

# GMP Compliance Criteria

















- ▶ No violation of standards outside the GMZ
- ▶ If a violation identified, permittee shall submit corrective action plan to agencies
- ▶ Upon approval, permittee executes corrective action plan




# COAKLEY AREA PFAS INVESTIGATION & PRIVATE WELL SAMPLING PROGRAM


 Coakley Landfill  
GMZ (Approximate)

## PFOA + PFOS (PPT)

Supply Well	Monitoring Well	Surface Water	Other Sample	
				≥70
				40 - <70
				<40
				ND

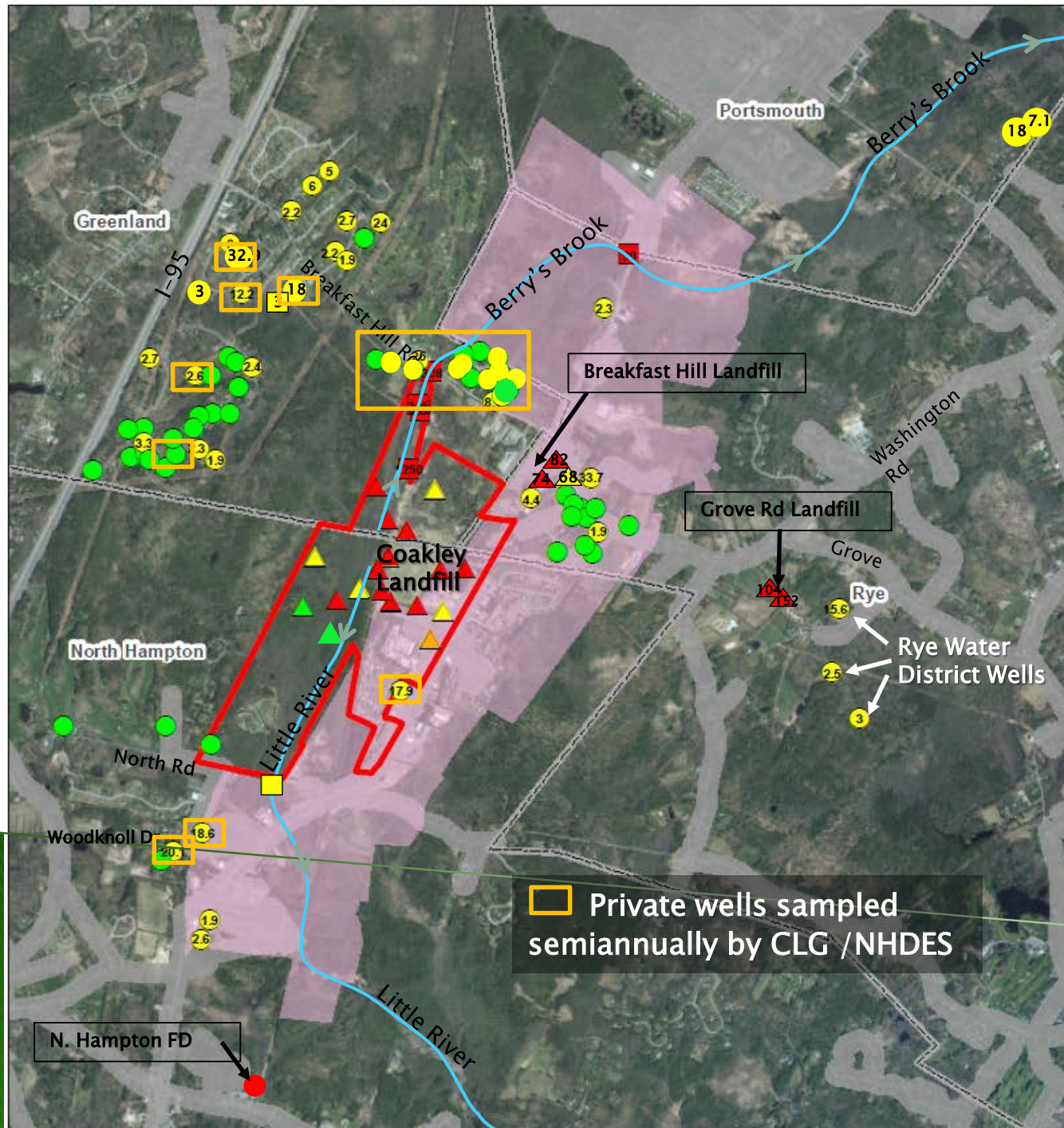
 Postcards Mailed

 Water Distribution

 Political Boundary

 Private wells sampled  
semiannually by CLG /NHDES

Approximately 1 mile





# PFAS INVESTIGATION Updated: June 5, 2018

Please note that the data presented is under constant revision as new sites or facilities are added. The data may not contain all of the potential or existing sites or facilities. NHDES is not responsible for the use or interpretation of this information. Not intended for legal purposes.

★ Existing Remedial Site with PFAS Detections

Political Boundary

Public Water Distribution

Wellhead Protection Area

Landfill

## PFAS + PFOA

Supply Well	Monitoring Well	Surface Water	Other Sample	
				≥400
				70 - <400
				40 - <70
				<40
				ND

Analytical Result Pending

0 2,600 5,200 10,400 Feet

1 in = 2,600 feet





# PFAS INVESTIGATION Updated: June 5, 2018

Please note that the data presented is under constant revision as new sites or facilities are added. The data may not contain all of the potential or existing sites or facilities. NHDES is not responsible for the use or interpretation of this information. Not intended for legal purposes.

★ Existing Remedial Site with PFAS Detections

Political Boundary

Public Water Distribution

Wellhead Protection Area

Landfill

## PFOA + PFOS

Supply Well	Monitoring Well	Surface Water	Other Sample	
				≥400
				70 - <400
				40 - <70
				<40
				ND
				Analytical Result Pending

0 2,600 5,200 10,400 Feet

1 in = 2,600 feet



Map By: Derek Bennett 271-8520



# Coakley Landfill

## Contact Information

Richard Hull  
U.S. EPA – New England, Region 1  
Tel. (617) 918-1882  
E-mail: [Hull.Richard@epa.gov](mailto:Hull.Richard@epa.gov)

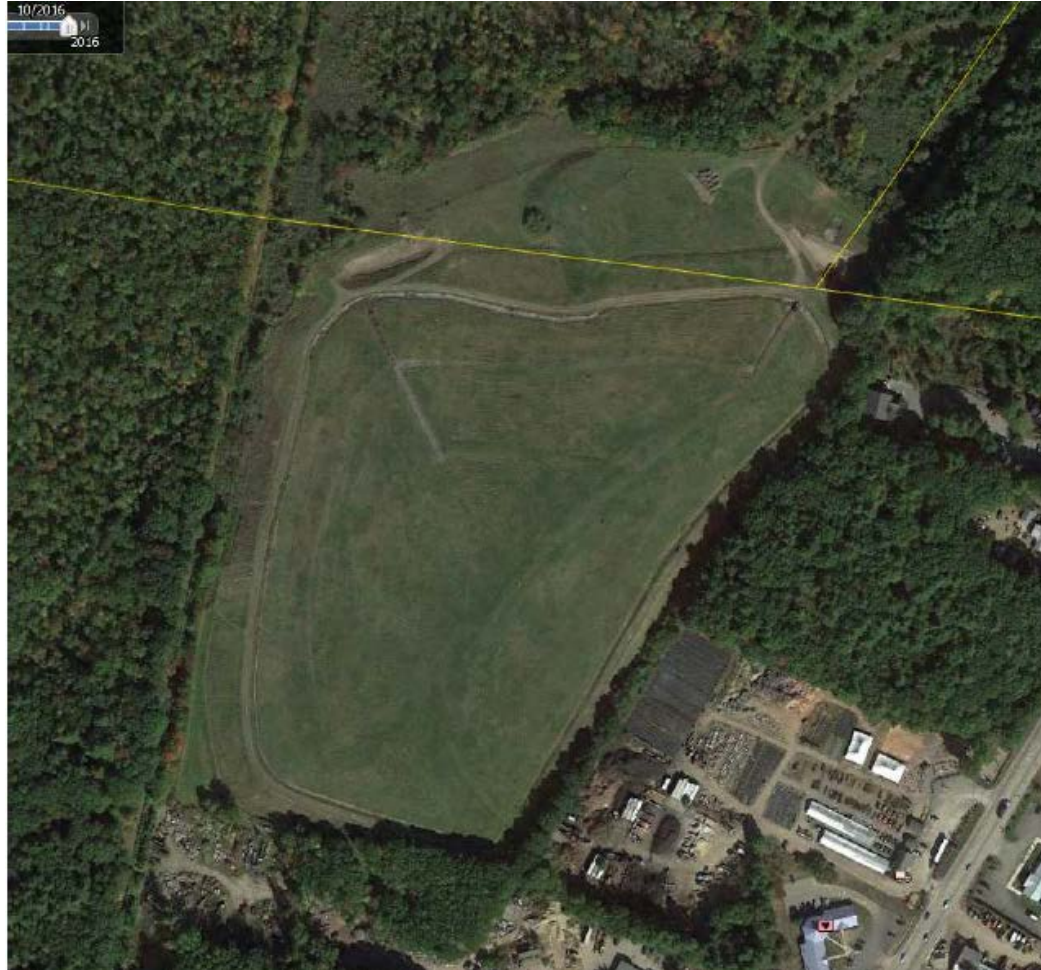
Jim Murphy  
U.S. EPA – New England, Region 1  
Tel. (617) 918-1028  
E-mail: [murphy.jim@epa.gov](mailto:murphy.jim@epa.gov)

Andrew Hoffman, P.E.  
NH Department of Environmental  
Services  
Tel. (603) 271-6778  
E-mail: [Andrew.Hoffman@des.nh.gov](mailto:Andrew.Hoffman@des.nh.gov)





# Coakley Landfill Update



**CLG Open House**  
June 7, 2018

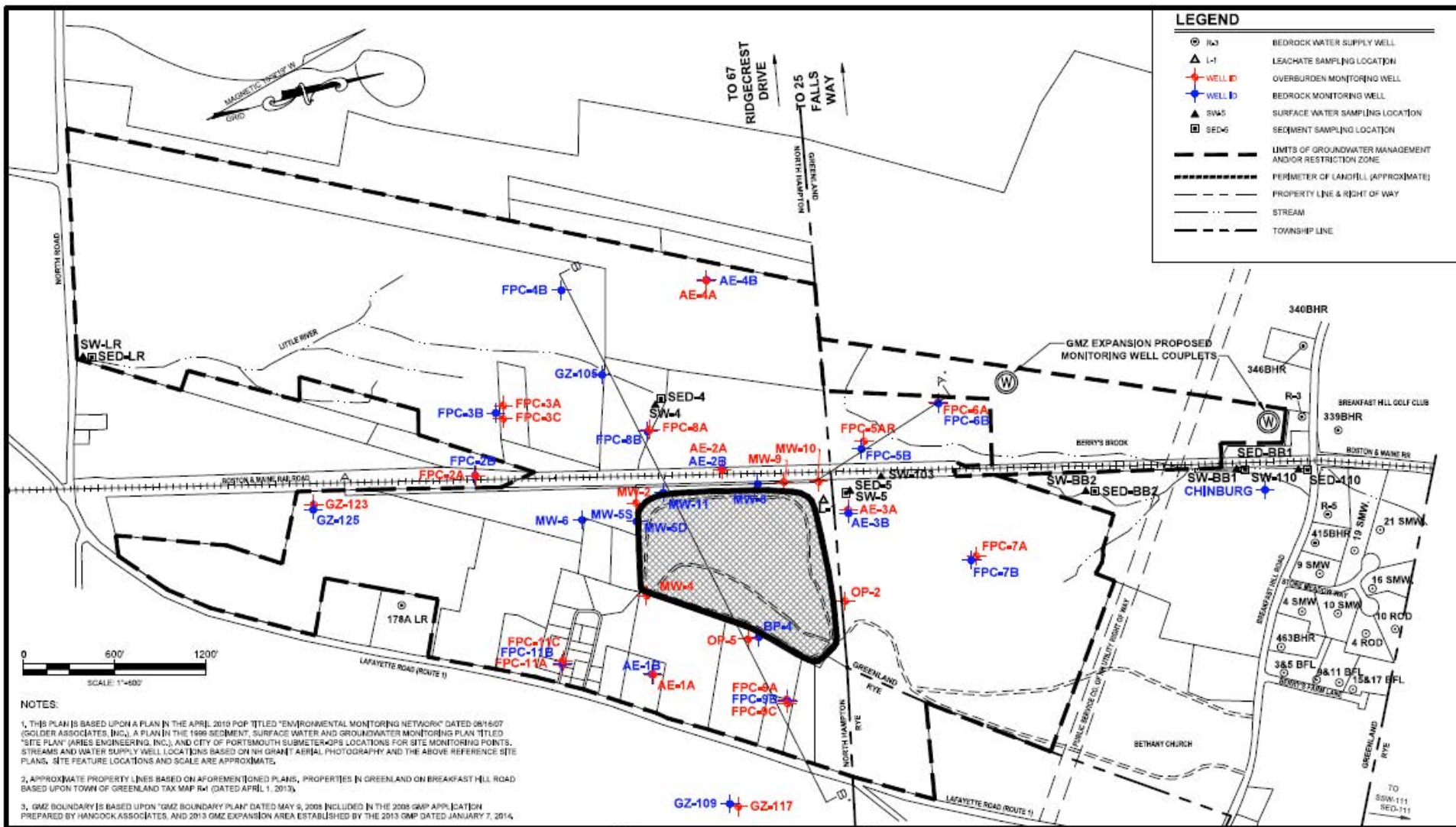


# Coakley Landfill Area

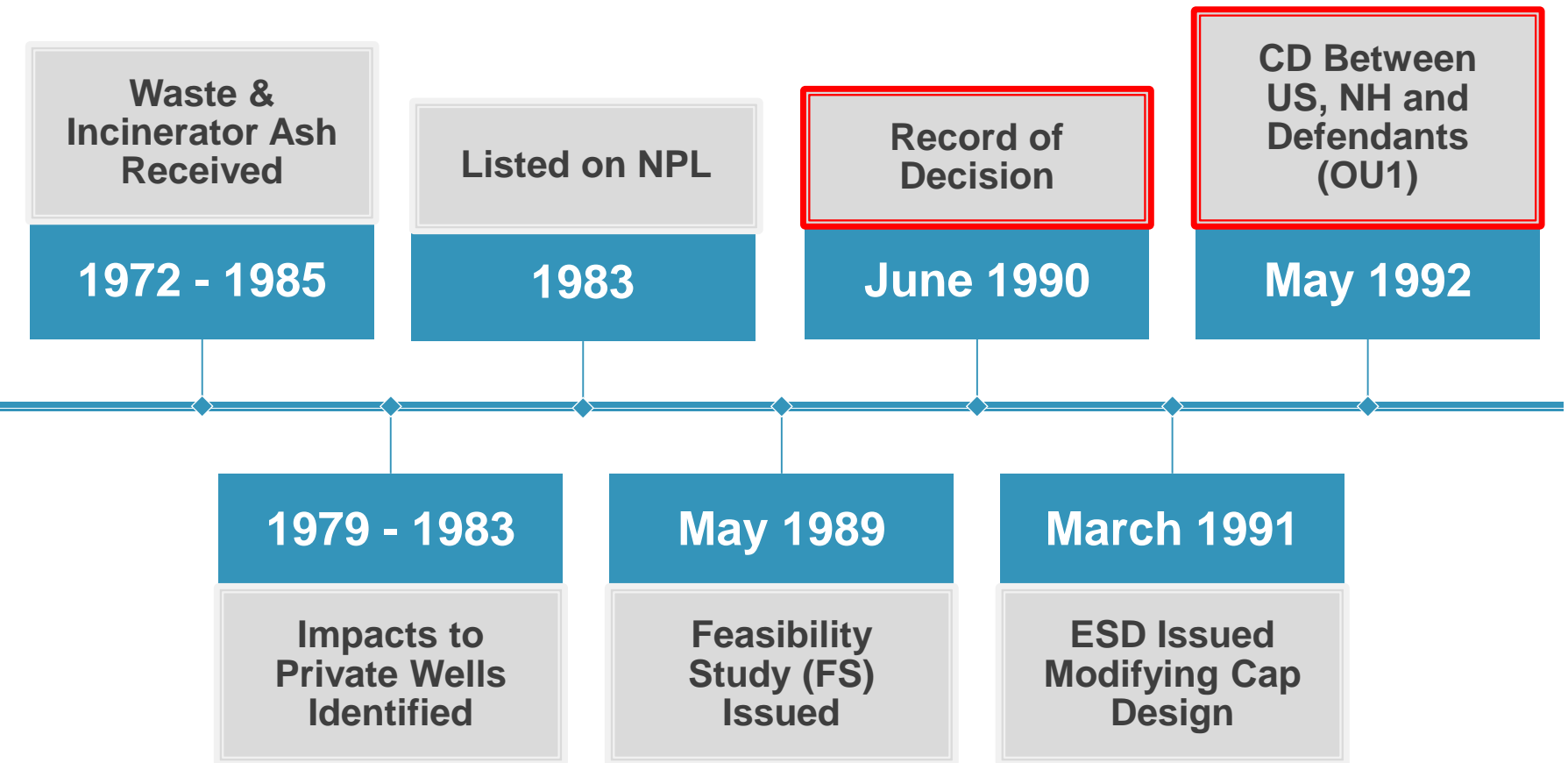




# Coakley Landfill Site Plan

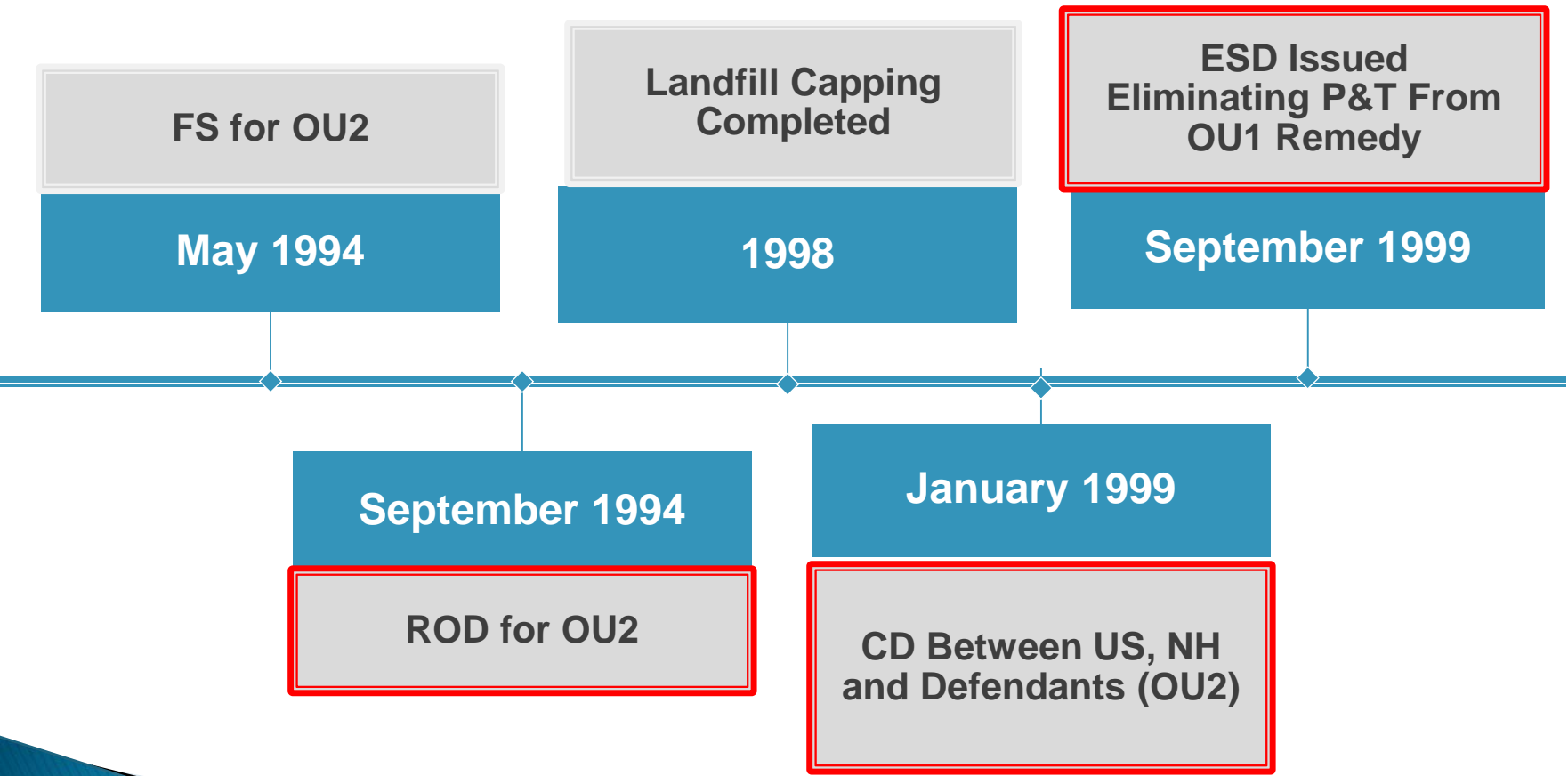


# Background 1972 to 1994

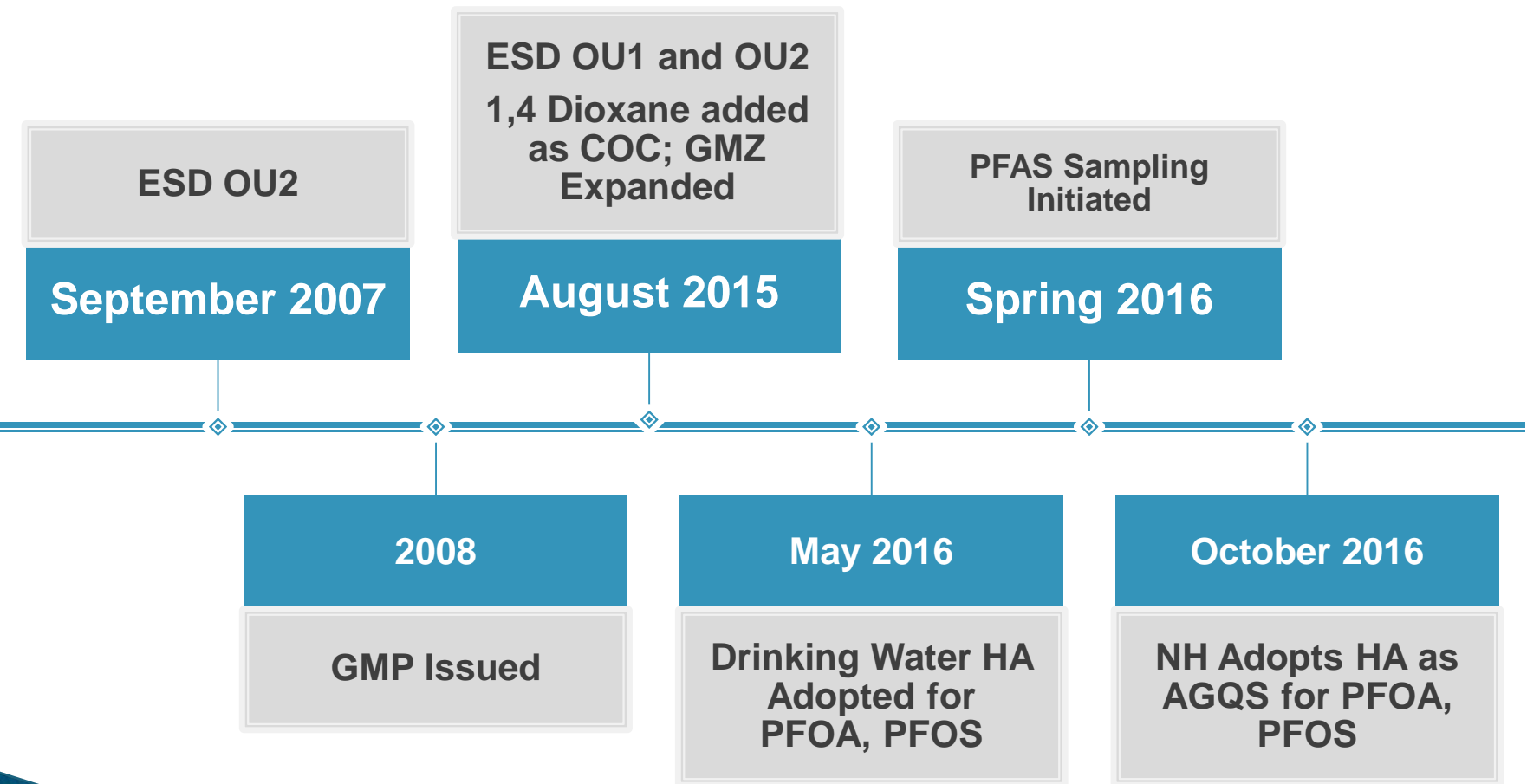




# Background 1994 to 2015



# Background 1994 to 2015





# USEPA Health Advisory (HA)

- ▶ HAs established for PFOA and PFOS = 70 ppt in *drinking water*.
- ▶ HAs provide information on contaminants that can cause human health effects and are known or anticipated to occur in drinking water.
- ▶ EPA's HA for PFOA and PFOS offers a margin of protection throughout a person's life from adverse health effects resulting from exposure to PFOA and PFOS in drinking water.



# Screening Levels



- ❑ January 2017 EPA calculated risk-based Screening Levels (SLs) for *incidental ingestion* of surface water and sediment assuming exposure durations of 120 (conservative) and 45 days/yr (realistic) for PFOA, PFOS and PFBS
- ❑ November 2017 EPA calculated risk-based SLs for standard recreational fish consumption rates for a child for PFOA, PFOS and PFBS
  - ❑ Most conservative exposure assumption for child
    - ❑ 6,000 mg/day, 350 days/year, 6 years (about 74 ounces per year)

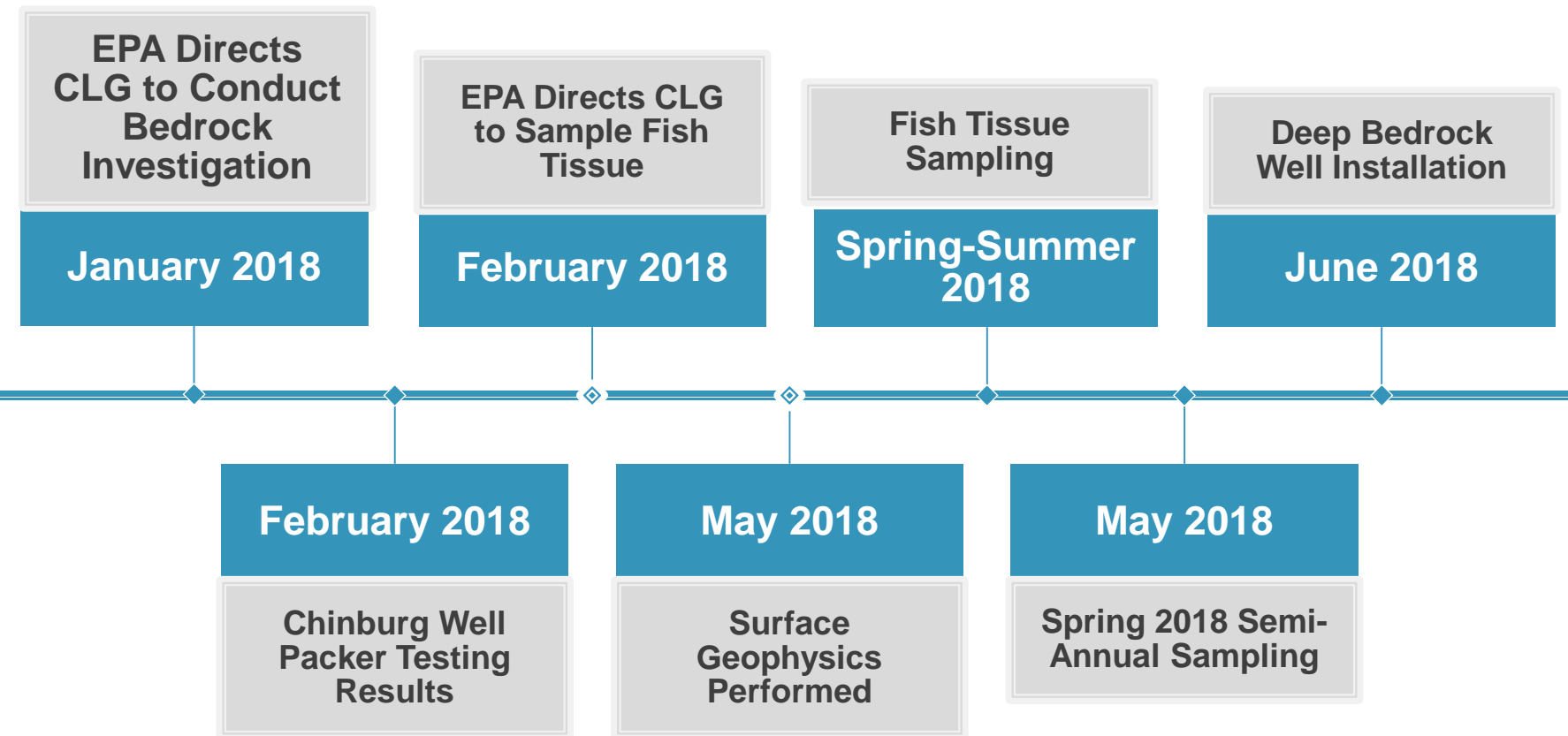


# Overview of SLs for Recreational Ingestion of Surface Water, Sediment & Fish Tissue

## Risk-Based Screening Levels

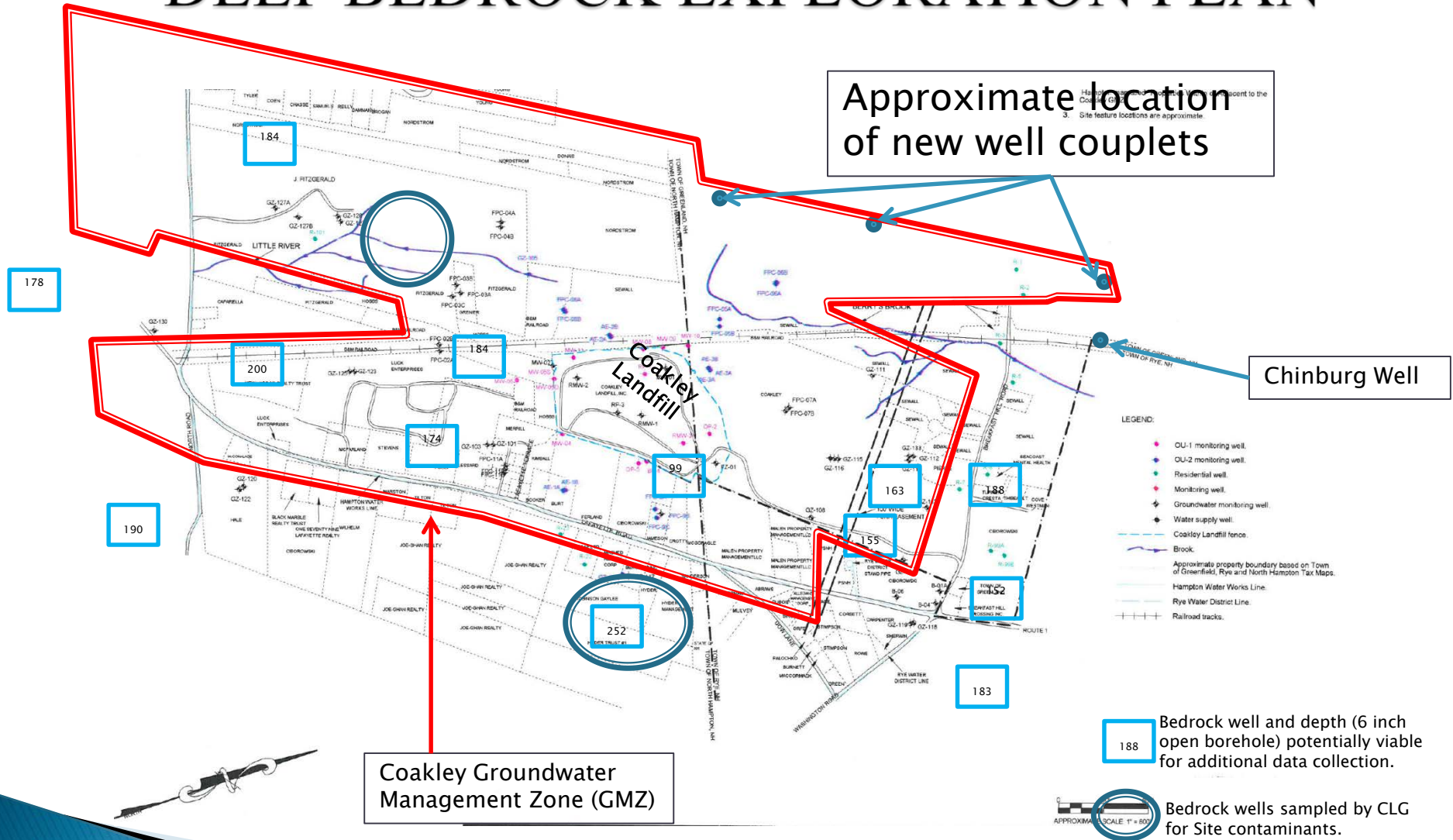
	Surface Water (ng/L)		Sediment (mg/kg)		Fish (mg/kg)
<b>Assumptions</b>	120 day/yr	45 day/yr	120 day/yr	45 day/yr	6 grams/day
<b>PFOS/PFOA</b>	760	2,030	0.369	0.98	0.00521
<b>PFBS</b>	760,000	2,030,000	369	983	5.21

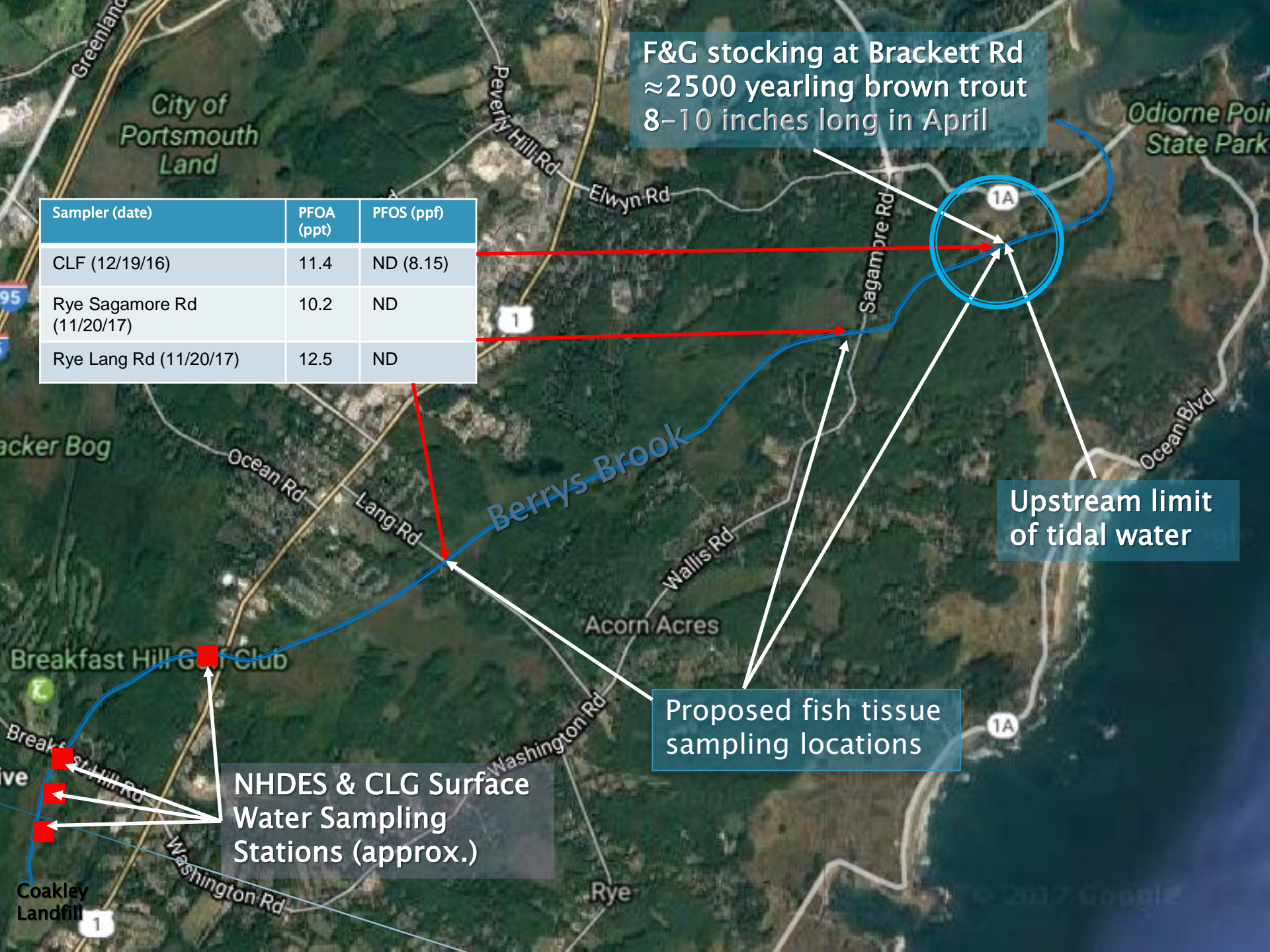
# Ongoing and Upcoming Activities





# COAKLEY PHASE I DEEP BEDROCK EXPLORATION PLAN







# Coakley Landfill Contact Information

[www.epa.gov/superfund/coakley](http://www.epa.gov/superfund/coakley)

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